DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Specification

2. The claims and specification were amended. Previous objections to the specification are withdrawn since antecedent basis is now provided for:

a. The fine filtering apparatus shown in Figure 2.

b. The elongated housing 1.

c. The water inlet 2.

d. The water guide jacket 7.

e. The header jacket 16.

f. The clarified water outlet 3.

g. The waste outlet 5.

h. The air outlet 4.

i. The air used to clean the apparatus.

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

a. Member with openings – Claims 29 and 37. In the patentability analysis, the examiner will assume these are air supply holes 14 in the media fixing plate 12 recited in the specification and shown in Figure 6-7.

b. Treatment cavity – Claim 41. In the patentability analysis, the examiner will assume this is the interior cavity enclosed by the elongated housing 1 recited in the specification and shown in Figure 2.

c. Annular device – Claim 43. In the patentability analysis, the examiner will assume this is the density control plate 9 recited in the specification and shown in Figures 2 and 10.

d. Openings adjacent the fibers – Claim 44. In the patentability analysis, the examiner will assume these are air supply holes 14 in the media fixing plate 12 recited in the specification and shown in Figure 6-7.

e. Fiber fixing plate – Claim 45. In the patentability analysis, the examiner will assume this is the media fixing plate 12 recited in the specification and shown in Figures 1-2 and 6-8.

f. Fiber fixing plate openings – Claim 45. In the patentability analysis, the examiner will assume these are air supply holes 14 in the media fixing plate 12 recited in the specification and shown in Figure 6-7.

g. Openings in the outer wall of the treatment cavity – Claim 46. In the patentability analysis, the examiner will assume these are the supplied water passing holes 8 recited in the specification and shown in Figures 2 and 9.

Claim Rejections - 35 USC § 103

4. Claims 25 and 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cote et al. (US Patent No. 5,607,593, Mar. 4, 1997) in view of Barzuza et al. (US Patent No. 4,617,120, Oct. 14, 1986).

5. Regarding independent claim 25, Cote et al. discloses "filtration and purification installations for the treatment of water" that "can implement many variants of filtration or backwashing methods," with one embodiment including an air compressor for air injection into the treatment chamber (applicant's cavity) to create ozone. Cote et al., Column 1, lines 9-10; Column 3, line 10; Column 5, lines 46-58. In Figures 10 and 11, Cote et al. further teaches a housing (sheath 5a) with an impervious wall enclosing an interior cavity and flexible fibers (membranes 3). As can be seen in the figures, the housing has two end portions. The bottom end portion has a water inlet that includes an annular water guide jacket (bottom open-worked zone 8) and an air inlet (porous structure 16). The top end portion (applicant's header jacket) has a clarified water outlet (permeate outlet) and a waste outlet (top open-worked zone 8). Applicant also recites a filtering mode of operation with air and a filtering mode of operation without air. Although these add no further limitations to the claimed structure, it is noted that the Cote et al. apparatus disclosed in Figures 10 and 11 can function with or without air flow – and that the concentrated waste can exit via the waste outlet during air flow and that the permeate can exit via the clarified water outlet without air flow, as recited.

6. To recap, Cote et al. discloses the claimed invention except that the flexible fibers are filtration membranes that generate permeate and the recited fibers are solid

and filter "without separating permeate from water." Barzuza et al. teaches that it is known in the water filtration art to place a skirt of solid flexible fibers (fibers 6) around a filter tube 2 having perforations 4. Barzuza et al., Column 1, lines 9-18; Figures 1 and 20-23; Column 3, lines 1-4. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted the flexible hollow fibers in the Cote et al. apparatus with the flexible solid fibers surrounding a filtering tube as taught by Barzuza et al., since Barzuza et al. states at Column 1, lines 43-46 that such a modification would "provide a fluid filtering device that is self-cleaning by a flushing process and is both reliable and inexpensive."

7. Regarding claims 29 and 30, Cote et al., in view of Barzuza et al., discloses the claim 25 invention. In Figures 10 and 11, Cote et al., further teaches openings in the media fixing plate (shaded rectangle shown below membranes 3, into which membranes 3 are fixed), adjacent to the fiber ends (membranes 3) to disperse air about the fibers (bubbles shown).

8. Regarding claim 31, Cote et al., in view of Barzuza et al., discloses the claim 25 invention. In Figures 9-11, Cote et al. further teaches housing (sheaths 5a) with an annular water guide jacket (Figures 9-11, bottom open-worked zone 8 enclosed by a frustoconical jacket shown in Figure 9). Cote et al. further teaches, "[S]aid sheaths (applicant's housing) have holes (applicant's housing openings) that enable the passage of the water to be treated in said preferred direction of treatment. Sheaths such as this enable the precise demarcation of the filtration zone around each membrane, the holes for their part making it possible to set up a precise circuit of the route taken by the water

so that the water can undergo very effective filtration of said membranes." Thus, the "array of openings in the outer wall" are "aligned with the annular water guide jacket to conduct water into the cavity and distribute water within the cavity," as recited in the claim.

9. Regarding claim 32, Cote et al., in view of Barzuza et al. discloses the claimed invention as applied to claim 25. As was discussed in the claim 25 patentability analysis, Barzuza et al. teaches that it is known in the water filtration art to place a skirt of solid flexible fibers (fibers 6) around a porous chamber (filter tube 2 having perforations 4). Barzuza et al., Column 1, lines 9-18; Figures 1 and 20-23; Column 3, lines 1-4. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted the flexible hollow fibers in the Cote et al. apparatus with the flexible solid fibers surrounding a porous chamber as taught by Barzuza et al., since Barzuza et al. states at Column 1, lines 43-46 that such a modification would "provide a fluid filtering device that is self-cleaning by a flushing process and is both reliable and inexpensive."

10. Claim 33 recites a porous chamber that fills 10% to 50% of the cavity volume. It would have been obvious to one having ordinary skill in the art at the time the invention was made, in the Cote et al. apparatus, to have made the porous chamber 10% to 50% of the cavity volume, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

11. In summary, Cote et al., in view of Barzuza et al., discloses or suggests all limitations recited in claims 25 and 29-33.

12. Claims 26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cote et al. (US Patent No. 5,607,593, Mar. 4, 1997) and further in view of Barzuza et al. (US Patent No. 4,617,120, Oct. 14, 1986) and Iwatsuka et al., (US Patent No. 4,915,833, Apr. 10, 1990).

13. Regarding claim 26, Cote et al. discloses a media fixing plate (Figures 10 and 11, shaded rectangle shown below membranes 3) into which the fibers (membranes 3) are disposed. As was discussed in the claim 25 patentability analysis, Barzuza et al. teaches the recited non-tubular, non-membranous fibers disposed around a porous chamber.

14. Cote et al., in view of Barzuza et al., discloses the claimed invention except that the fiber free ends are near the housing's first end (bottom end) and not the second end (top end) as recited in the claim. Iwatsuka et al. teaches such a fiber configuration in the context of a high-rate water filter to remove suspended solids – where the "bundles of long fibers are fixed at their lower end portions but are free-standing at their upper end portions." Iwatsuka et al., Figure 1; Column 1, lines 10-20; Abstract, lines 2-4. Iwatsuka et al. further teaches, "The column filter according to this invention allows to perform backwashing with backwashing water and/or compressed air of a high flow velocity in a short time. . . . Further, the column filter according to this invention allows to increase the flow velocity to a considerable extent compared to the conventional

filters. It is hence possible to reduce the cross-sectional area of the column filter. This obviously leads to a considerable reduction in installation cost and space." Iwatsuka et al., Column 4, lines 30-45. It would have been obvious to one having ordinary skill in the art at the time the invention was made, in the Cote et al. apparatus, to have placed the flexible fibers with the free ends near the housing's second end, as taught by Iwatsuka et al., since Iwatsuka et al. states at Column 4, lines 30-45, that such a modification would decrease backwashing time and would increase the flow velocity through the filter apparatus such that the filter apparatus's cross-sectional area could be decreased, thereby saving installation cost and space.

15. Regarding claim 28, Cote et al., in view of Barzuza et al. and Iwatsuka et al., discloses the claim 26 invention. Iwatsuka et al. further teaches the density control plate (band 28) in Figure 7 where the fibers are fixed in the media fixing plate (perforated plate 2) as shown in Figure 9. Iwatsuka et al. also teaches a density control plate in the form of "one or more upright partition walls 43 (applicant's annular density control plate) substantially parallel with the bundled long fibers 3 (applicant's fibers) within the shell 1 (applicant's housing) . . . so that the bundled long fibers 3 may be prevented from being bent horizontally or obliquely during the feeding of the raw water." Iwatsuka et al., Figure 6 and Column 9, lines 35-42. It would have been obvious to one having ordinary skill in the art at the time the invention was made, in the Cote et al. apparatus, to have placed a density control plate just above the media fixing plate, as taught by Iwatsuka et al., since Iwatsuka et al. states at Column 9, lines 40-42, that such a modification would prevent the fibers "from being bent horizontally or obliquely

during the feeding of the raw water." This location in the Cote et al. apparatus, would place the density control plate between the media fixing plate (Figures 10 and 11, shaded rectangle shown below membranes 3) into which the fibers (Figures 10 and 11, membranes 3) are disposed and the water guide jacket (Figures 10 and 11, bottom open-worked zone 8), as recited in the claim.

16. In summary, Cote et al., in further view of Barzuza et al. and Iwatsuka et al., discloses or suggests all limitations recited in claims 26 and 28.

17. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cote et al. (US Patent No. 5,607,593, Mar. 4, 1997), in view of Barzuza et al. (US Patent No. 4,617,120, Oct. 14, 1986) as applied to claim 25 above, and further in view of Iwatsuka et al. (US Patent No. 4,915,833, Apr. 10, 1990) for polyester fibers and polyamide fibers, and Ford et al. (US Patent No. 4,793,932, Dec. 27, 1988) for polypropylene fibers.

18. Cote et al., in view of Barzuza et al., discloses the claimed invention and Cote et al. further teaches a flexible fiber of "organic" material and that "ozone-resistant organic membranes are advantageously chosen from the group of fluorine-containing polymers such as PVDF or PTFE" – but neither reference teaches the recited polyester, polyamide, or polypropylene fibers. Cote et al., Column 4, lines 48-50 and 53-55. Iwatsuka et al. discloses polyester fibers and polyamide fibers in the context of a high-rate water filter to remove suspended solids – where the "bundles of long fibers are fixed at their lower end portions but are free-standing at their upper end portions."

Iwatsuka et al., Figure 1; Column 1, lines 10-20; Abstract, lines 2-4. Iwatsuka et al. further teaches, "The bundled long fibers 3 are thus required to have stiffness and packing quantity or density sufficient to prevent their horizontal bending and to allow them to remain upright as a whole in the upright cylindrical shell 1 during the feeding of the raw water. Usable fibers include synthetic fibers such as acrylic fibers, polyester fibers and polyamide fibers as well as natural fibers such as cotton and wool." Iwatsuka et al., Figure 1 and Column 7, lines 18-26. It would have been obvious to one having ordinary skill in the art at the time the invention was made, in the Cote et al. apparatus, to have made the flexible fibers of polyester or polyamide, as taught by Iwatsuka et al., since Iwatsuka et al. states at Column 7, lines 18-26, that such a modification would make fibers with the requisite "stiffness . . . sufficient to prevent their horizontal bending and to allow them to remain upright as a whole in the upright cylindrical shell 1 during the feeding of the raw water."

19. Cote et al., in view of Barzuza et al., discloses the claimed invention except for explicitly stating that the fibers are polypropylene. Ford et al. teaches polypropylene fibers as the preferred embodiment in the context of a "concentrator for concentrating the fine solids of a liquid feed suspension that has a shell within which there is a bundle of microporous fibers." Ford et al., Abstract, lines 1-3; Figure 1; Column 4, lines 35-45. The concentrator is shown in Figure 1 and is a diaphragm whose volume is altered. It would have been obvious to one having ordinary skill in the art at the time the invention was made, in the Cote et al. apparatus, to have made the flexible fibers of polypropylene, as taught by Ford et al., since Iwatsuka et al. states at Column 7, lines

18-26, that the flexible fibers must have requisite "stiffness . . . sufficient to prevent their horizontal bending and to allow them to remain upright as a whole in the upright cylindrical shell 1 during the feeding of the raw water" and Karacan (*Polypropylene – An A-Z Reference*, ed. J. Karger-Kocisis, pub. Kluwer Publishers, Dordrecht, 1999 – Chapter entitled "Structure-Property Relationships of Polypropylene Fibers) states on Page 783, ¶ 1, lines 5-6, that polypropylene fibers have high stiffness due to their crystallinity.

20. In summary, Cote et al., in view of Barzuza et al., in further view of Iwatsuka et al. for polyester fibers and polyamide fibers, and Ford et al. for polypropylene fibers, discloses or suggests all claim 27 limitations.

21. Claims 34 and 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cote et al. (US Patent No. 5,607,593, Mar. 4, 1997) and further in view of Barzuza et al. (US Patent No. 4,617,120, Oct. 14, 1986).

22. Claims 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cote et al. (US Patent No. 5,607,593, Mar. 4, 1997) and further in view of Barzuza et al. (US Patent No. 4,617,120, Oct. 14, 1986) and Iwatsuka et al. (US Patent No. 4,915,833, Apr. 10, 1990).

23. Independent claim 34 is analogous to independent claim 25 but substitutes claim 25's "annular water guide jacket" for "first end portion of the housing" and also substitutes claim 25's "header jacket" for "second end portion of the housing." As such, the patentability analyses are similar and will not be repeated here.

24. Likewise, claims 35-40 are analogous to claims 26 and 28-32, respectively. Some wording differences exist. For example, the term "annular water guide jacket" returns in claim 39 instead of appearing in independent claim 34. Also, the wording differences have led to a lack of antecedent basis and the specification was objected to above when this occurs. Still, the patentability analyses are similar and will not be repeated here.

25. In summary, Cote et al., in view of Barzuza et al., discloses or suggests all limitations recited in claims 34 and 37-40. Cote et al., in view of Barzuza et al., in further view of Iwatsuka et al., discloses or suggests all limitations recited in claims 35-36.

26. Claims 41-49 are methods claims that describe filtration and cleaning with air on the treatment side, using the above filtering apparatus. In the above patentability analysis, the filtration apparatus claims were rejected under 35 U.S.C. 103(a) as being unpatentable over Cote et al., in view of Barzuza et al., and, in some cases, in further view of Iwatsuka et al.. In the patentability analysis below, the method claims are also found to be unpatentable over the same references.

27. Specifically, method claims 41-42 and 44-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cote et al. (US Patent No. 5,607,593, Mar. 4, 1997), in view of Barzuza et al. (US Patent No. 4,617,120, Oct. 14, 1986). Method claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cote et al. (US Patent No.

5,607,593, Mar. 4, 1997), in view of Barzuza et al. (US Patent No. 4,617,120, Oct. 14, 1986), in further view of Iwatsuka et al. (US Patent No. 4,915,833, Apr. 10, 1990).

28. To paraphrase independent claim 41, applicant is claiming a method to use the above filtration apparatus to filter raw water and to clean the fibers with both raw water and air introduced on the raw water side. Applicant's filtration apparatus has a housing with flexible fibers inside. The flexible fibers are solid, not porous. At the first end of the body is a water inlet and an air inlet. At the second end of the body is a clarified water outlet and a waste outlet. The described apparatus was already found unpatentable in the claim 25 patentability analysis above.

29. Applicant uses the filtration apparatus as follows:

(1) Close the waste outlet line and open the clarified water outlet line.

(2) Feed raw water through the water inlet into the housing.

(3) Discharge the clarified water from the clarified water outlet.

(4) Close the clarified water discharge line and open the waste outlet line.

(5) Inject air into the housing to form an air-water mixture.

(6) Let the air-water mixture pass through the housing to clean the flexible fibers.

(7) Discharge concentrated waste through the waste outlet line.

30. Cote et al., in view of Barzuza et al., discloses the claimed apparatus as recited in claims 25 and 34. Cote et al. further teaches the claimed method in Figures 10 and 11. There, when the valve on the waste outlet line (Figure 11, pipe 40) is closed and the valve on the clarified water outlet line, leading to pump 17, is opened, raw water is

fed into the housing (Figures 10-11, sheath 5a) through the water inlet (Figures 10-11, bottom open-worked zone 8) and clarified water is discharged through the clarified water outlet (Figure 11, permeate outlet). When the valve on the clarified water outlet line, leading to pump 17, is closed and the valve on the waste outlet line (Figure 11, pipe 40) is opened, air is injected into porous structure 16 (shown in Figure 10) and mixes with water. The air-water mixture enters the housing and cleans the flexible fibers (membranes 3), with concentrated waste exiting through the waste outlet line (Figure 11, pipe 40) valve.

31. In summary, Cote et al., in view of Barzuza et al., discloses or suggests all claim 41 limitations.

32. Dependent claim 42 recites one end of the flexible fibers is fixed while the other end is unattached. As was discussed in the claim 25 patentability analysis above, Cote et al. discloses the claimed invention except that the flexible fibers are filtration membranes that generate permeate and the recited fibers are solid and filter "without separating permeate from water." Barzuza et al. teaches that it is known in the water filtration art to place a skirt of solid flexible fibers (fibers 6) around a porous chamber (filter tube 2 having perforations 4). Barzuza et al., Column 1, lines 9-18; Figures 1 and 20-23; Column 3, lines 1-4. This skirt of fibers is applicant's flexible fibers that are fixed at one end and free at the other, as recited in claim 42. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted the flexible hollow fibers in the Cote et al. method with the skirt of flexible

solid fibers surrounding a porous chamber as taught by Barzuza et al., since Barzuza et al. states at Column 1, lines 43-46, that such a modification would "provide a fluid filtering device that is self-cleaning by a flushing process and is both reliable and inexpensive."

33. In summary, Cote et al., in view of Barzuza et al., discloses or suggests all claim 42 limitations.

34. Dependent claims 44-46 lack antecedent basis with the recited "treatment cavity" of claim 41, "openings" adjacent to the fibers in claim 44, and "openings" in a "fiber fixing plate" in claims 45, and "openings" to the treatment cavity in claim 46. The examiner will assume that claims 44 and 45 recite air supply holes 14 in the media fixing plate 12; and that claim 46 recites supplied water passing holes 8. As such, these limitations are taught by Cote et al..

35. In Figures 10 and 11, Cote et al. discloses a media fixing plate (shaded rectangle shown below membranes 3) into which the fibers (membranes 3) are secured. In these same figures, Cote et al. further teaches openings in the media fixing plate adjacent to the fiber ends (membranes 3) to disperse air about the fibers (bubbles shown) [claims 44-45]. Finally, in Figures 10 and 11, Cote et al. discloses a sheath 5a (applicant's housing that surrounds the treatment cavity) with a bottom open-worked zone 8 (applicant's openings to the treatment cavity) [claim 46].

36. In summary, Cote et al., in view of Barzuza et al., discloses or suggests all limitations recited in methods claims 44-46.

37. Regarding claim 47, Cote et al., in view of Barzuza et al. discloses the claim 41 invention. As was discussed in the claim 25 patentability analysis, Barzuza et al. teaches that it is known in the water filtration art to place a skirt of solid flexible fibers (fibers 6) around a porous chamber (filter tube 2 having perforations 4). Barzuza, Column 1, lines 9-18; Figures 1 and 20-23; Column 3, lines 1-4. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted the flexible hollow fibers in the Cote et al. method with the flexible solid fibers surrounding a porous chamber as taught by Barzuza et al., since Barzuza et al. states at Column 1, lines 43-46 that such a modification would "provide a fluid filtering device that is self-cleaning by a flushing process and is both reliable and inexpensive."
38. In summary, Cote et al., in view of Barzuza et al., discloses or suggests all claim 47 limitations.

39. Claim 48 recites generating turbulence in the treatment cavity by contacting water with the fibers. In other words, the limitation is for water to flow fast enough past the fibers to create turbulence. Cotes et al., in view of Barzuza et al., discloses the claimed invention including that water flow in to and out of the housing, past the fibers -- but does not specifically state that the water flow fast enough past the fibers to create turbulence. It would have been obvious to one having ordinary skill in the art at the time the invention was made, in the Cotes et al. method, to have made the water flow fast enough past the fibers to create turbulence since it has been held that discovering an

optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

40. In summary, Cote et al., in view of Barzuza et al., discloses or suggests all claim 48 limitations.

41. Claim 49 recites a housing enclosing the treatment cavity -- the treatment cavity previously lacking antecedent basis. Claim 49 further recites an air inlet and water inlet at one end portion of the housing -- and a clarified water outlet and concentrated waste outlet at the other end portion of the housing. The housing is cylindrical and the fibers extend longitudinally through the treatment cavity. Cote et al., in view of Barzuza et al., teaches the claimed invention as recited in independent claim 41.

42. In Figures 10 and 11, Cote et al. further discloses a cylindrical housing (sheath 5a) that has fibers (membranes 3) extending longitudinally within. The housing has two end portions. The bottom end portion has a water inlet (bottom open-worked zone 8) and an air inlet (porous structure 16). The top end portion has a clarified water outlet (permeate outlet) and a waste outlet (top open-worked zone 8).

43. In summary, Cote et al., in view of Barzuza et al., discloses or suggests all claim 49 limitations.

44. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cote et al. (US Patent No. 5,607,593, Mar. 4, 1997), in view of Barzuza et al. (US Patent No.

4,617,120, Oct. 14, 1986) as applied to claim 41 above, and further in view of Iwatsuka et al., (US Patent No. 4,915,833, Apr. 10, 1990).

45. Cote et al., in view of Barzuza et al., discloses the claimed invention except for the annular device. Because the annular device has no antecedent basis, the examiner will assume this is applicant's density control plate. As was shown above in the claim 28 analysis, Iwatsuka et al. discloses the density control plate.

46. Iwatsuka et al. discloses the density control plate (band 28) in Figure 7 where the fibers are fixed in the media fixing plate (perforated plate 2) as shown in Figure 9. Iwatsuka et al. further teaches a density control plate in the form of "one or more upright partition walls 43 (applicant's annular density control plate) substantially parallel with the bundled long fibers 3 (applicant's fibers) within the shell 1 (applicant's housing) . . . so that the bundled long fibers 3 may be prevented from being bent horizontally or obliquely during the feeding of the raw water." Iwatsuka et al., Figure 6 and Column 9, lines 35-42. It would have been obvious to one having ordinary skill in the art at the time the invention was made, in the Cote et al. method, to have placed a density control plate just above the media fixing plate, as taught by Iwatsuka et al., since Iwatsuka et al. states at Column 9, lines 40-42, that such a modification would prevent the fibers "from being bent horizontally or obliquely during the feeding of the raw water.

47. To summarize, Cote et al., in view of Barzuza et al., discloses or suggests all limitations recited in methods claims 41-42 and 44-49. Cote et al., in view of Barzuza et al., in further view of Iwatsuka et al., discloses or suggests all claim 43 limitations.

Response to Arguments

48. Applicant's arguments with respect to claims 25, 28, 34, 36-39, and 41 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

49. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The reference has most of the limitations recited for the claimed invention.

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50. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Denise R. Anderson whose telephone number is (571)270-3166. The examiner can normally be reached on Monday through Thursday, from 8:00 am to 6:00 pm.

51. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter D. Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

52. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R. Sample/
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